AMERICAN FRUIT GROWER MAGAZINE

November, 1930
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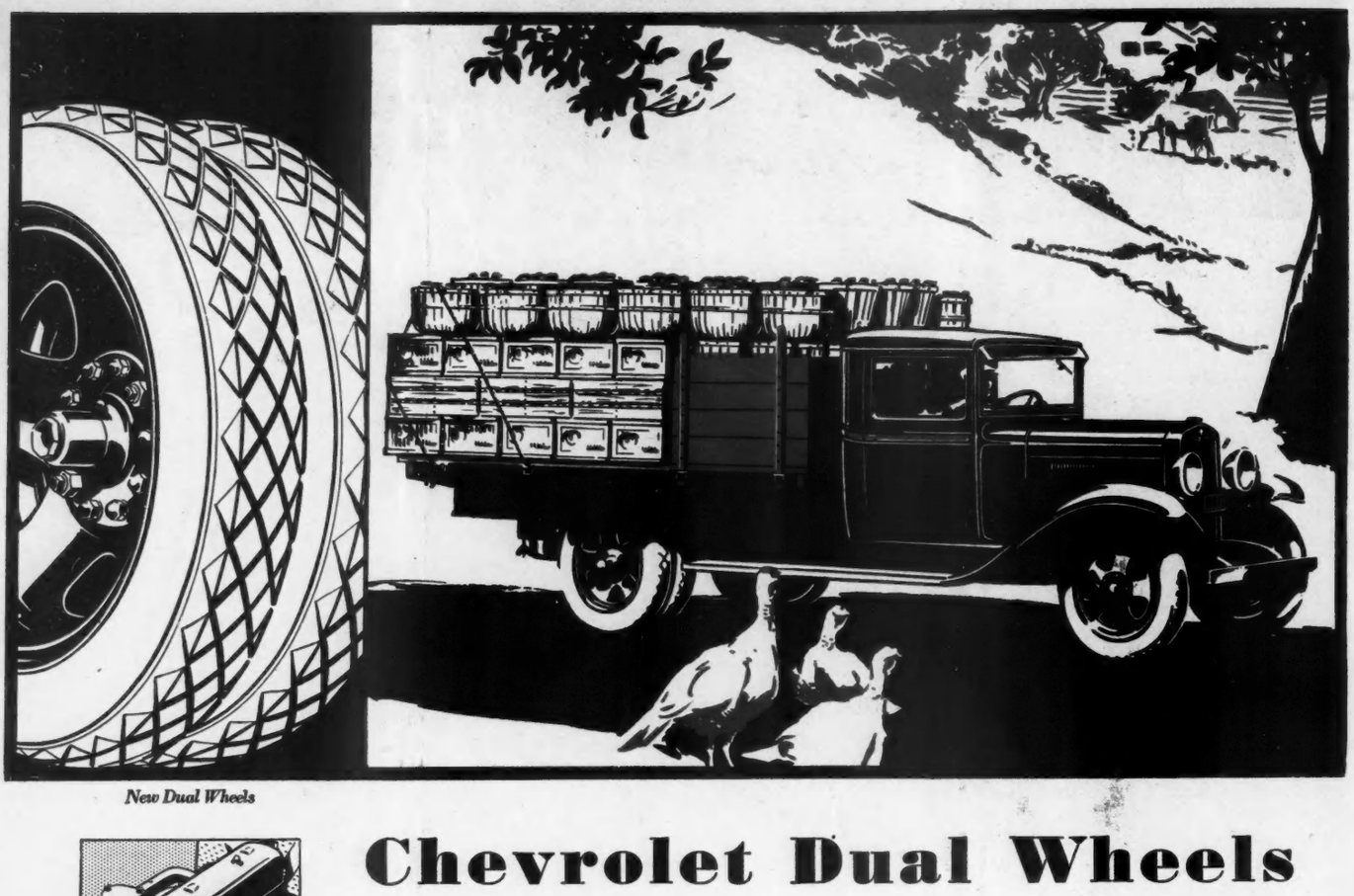

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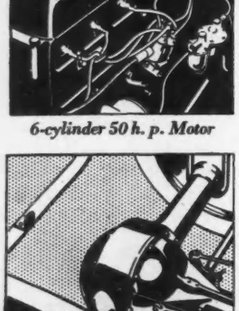

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If you do hauling over dirt roads, or fields, or any unpaved stretches, you know the value of dual wheels. And you will especially appreciate the dual wheels available on the new Chevrolet 1½-ton truck.

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American Fruit Grower
MAGAZINE

with which is consolidated

AMERICAN PRODUCE GROWER

VOLUME 50 NUMBER 11

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National Organization

THE FALL and winter horticultural society meetings will probably again be irritated by the question of giving financial support to the so-called National Horticultural Council. Some of the societies two years ago voted $50 each, two years' dues, to finance the initial expense of the proposed national organization.

It was fondly hoped by the originators of the movement that the fruit co-operatives would accept the "council" as the national spokesman of the fruit industry, and that they would give financial support in amounts of $50 to $500 each. Also that individual, unorganized growers would join at $5 and upwards per head.

But the business organizations, the co-operatives, looked upon the set-up with disfavor. It smacked of narrow partisanship. Individual growers in noticeable numbers "walked out" of the meetings while pleas for support of the "council" were being urged.

Injudicious, hasty, partisan, and sometimes even blatant "manifestos" by the "council" added nothing to its influence—though strict truth compels the admission that the organization lost no prestige thereby, having none to part with.

That the producers of fruit should have a strong, recognized and influential national organization through which to speak and to promote and to defend their interests, seems incontestable. But to possess these attributes, the organization must be both representative of and responsible to the industry. The very plan of organization of the "council" effectually prevented it from becoming either. A few men elected themselves and selected others to "represent" the fruit interests as directors. A horticultural society, for instance, after paying its dues, was rewarded and recognized by having some person from the society "elected" by the "council" to serve as a "director."

Undeniably able men were thus selected, but no financial arrangement was made for their attendance at "directors' meetings," and hence the "council" never rose above the status of a one-man enterprise.

The horticultural societies and kindred organizations are truly representative of the fruit industry. A compact national body, a committee, for instance, composed of elected representatives of the State and regional societies, would constitute a national body that could speak for the fruit industry with authority. Almost any of the experienced officers of any of these societies, but preferably an active grower, would succeed admirably as an executive officer.

Such an organization could speak authoritatively because it would be representative. Its decisions would carry weight because of the responsibility of the organization itself. It would secure the financial support of the fruit industry because it would command the respect and confidence of the growers.

Trade Restrictions Injure Both Home and Foreign Markets

THE FULL effects of the "worst tariff law in history" are not so keenly felt this year, by fruit growers, on account of the relatively short crop. But enough evil is apparent to convince the most skeptical that prosperity in the fruit industry, in all industries, is not to be reached over a road clogged by trade barriers.

Our Canadian apple exports are now a memory of the past. Our South American exports are diminishing. The outlook for our European fruit markets is far from rosy. Given a year of normal fruit production and the fruit surplus will present a problem not easy of solution.

Whether or not the damage done to the fruit industry by the tariff excesses can ever be repaired is not easily to be determined. Our country has taken the lead in the erection of barriers to trade and commerce, but other nations have followed our lead with an enthusiasm which a general feeling of justifiable irritation serves only to inflame.

Every branch of industry has felt the palsying effect of barred and bolted foreign market outlets. Our home market is now "protected" to the extent that it promises to become our only market. Factories running on half time can only mean a consuming population on half pay, so, as our foreign markets become restricted, our home market becomes impoverished.

Fruits, unfortunately, are still classed among the dispensable luxuries by a far too large proportion of the consuming public. When the family income shrinks, fruits are among the first foods to be stricken from the shoppers' list. This situation might be remedied by the persistent presentation to the press of the country of facts about fruit as food.

But a general downward revision of American tariffs will be necessary to the restoration of our foreign markets, the rehabilitation of our languishing industries and the recreation of profitable home markets based on a general ability to purchase.

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THE FORD TRUCK

THROUGHOUT the year, at every season, the Ford 1½-ton truck can serve you . . . with its steady and capable performance, with its capacity for long, hard work, and with a marked degree of economy that helps to lower expense.

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This and equal accuracy at other important points result in decreased wear, longer life, and greater value.

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Go to your Ford dealer, and let him show you at what low cost you can operate and maintain this truck on a farm.

Ford

MARKETING the APPLE CROP

The American Apple Dominates in the Markets of the World, Though Other Countries, Notably Australia, New Zealand and Russia, Are Improving Their Product and Pack. A Two-Part Story of Apple Marketing

By JAMES S. CRUTCHFIELD

President, American Fruit Growers, Inc.

PART I

THE UNITED STATES furnishes the chief apple supply not only for its own domestic market but for the markets of the world. Apples rank perhaps third among farm products in the proportion of the total commercial production exported. During recent years the United States has exported approximately 20 per cent of its commercial apple crop. The apples go chiefly to England and continental European markets, South America and Central America, with moderate quantities to Africa and the Orient.

American Apples Have High Quality

OUR apples are of better quality and reach the foreign markets in better condition than those from any other country. However, there has been a marked improvement in the grading and packing of apples from Australia, New Zealand and Russia during the past two years, although if the apple growers of the United States continue to improve the character of the fruit through methods of production, and then harvest and pack the fruit properly, they will continue to dominate the markets of the world indefinitely. In fact, with the improved transportation facilities and cheap ocean freight rates, the prospects are for a greatly enlarged export business in years to come. The discovery of oil wraps for box apples and oil waste for use in bushel and barrel apples has resulted in much less trouble from scald during the past five years.

According to government statistics, the production of apples in the United States has not increased materially during the last 30 years. The crop of 1896 was probably one of the largest crops ever harvested and marketed in this country. This happened to be the year I started in the business in Pittsburgh. I remember very distinctly selling good No. 1 New York State Baldwins for 75 cents a barrel delivered at Pittsburgh; good potatoes were selling at the same time for 25 cents a bushel delivered at Pittsburgh. Those were the good old days for the consumer, but the consumer was not happy about it; in fact, he seems much better pleased when prices are higher.

Other Fruits Competitive

IN view of the above statement, it would seem that apple prices should have averaged higher than they have during the past 10 years. The trouble has been not in the increase in apple supplies, but rather in the tremendous increase in the supplies of competing fruits, especially oranges, bananas and small fruits. After the war, for approximately six years the size of the commercial apple crop was heavy, excepting during the years of 1921 and 1924. About that time it became apparent that many orchards East and West were planted with the trees too close in the rows so that the fruit did not properly color. Many of these orchards had been planted with filler trees.

With the unsatisfactory prices prevailing and the high expenses of harvesting, storage and transportation, it was found that only the best varieties and the higher grades of apples could be produced profitably. Practical growers met the situation squarely and began cutting out the filler trees; cutting out undesirable varieties; improving cultural, spraying and thinning methods; also greatly improving the methods of harvesting and packing. Prior to 1923, a considerable portion of northwestern box apples were handled too slowly from tree to car, so that much of the fruit was seriously damaged before it left shipping point. Prior to that year, also, the railroads were not properly equipped with refrigerator cars and motive power. However, since that time the transportation service and the improved methods used by growers and shippers, together with improved varieties, have resulted in the markets of the world being furnished throughout the entire season, reaching up to July 15, with an even and adequate supply of strictly first-class apples, which have, in the main, reached the ultimate consumer in all parts of the world in good condition.

Washing, grading and packing apples in the Yakima district.

Our 7000 Acres of Apples

AN understanding of apple marketing may perhaps be had best by describing the actual procedure of our own company, the American Fruit Growers, Inc. Incidentally, the company has some 7000 acres of apple orchards in the Appalachian district (including Pennsylvania, Virginia, West Virginia and Maryland), southern Illinois, Wenatchee and Yakima, Washington. The company's principal business is marketing. It became engaged in production for the distinct purpose of attempting to improve the character of the fruit it is handling, including the grading and packing, with the view of putting out year after year a standardized product of superior merit which would establish for itself a reputation in the markets of the world, the fruit to be marketed under its consumer advertised Blue Goose trade-mark.

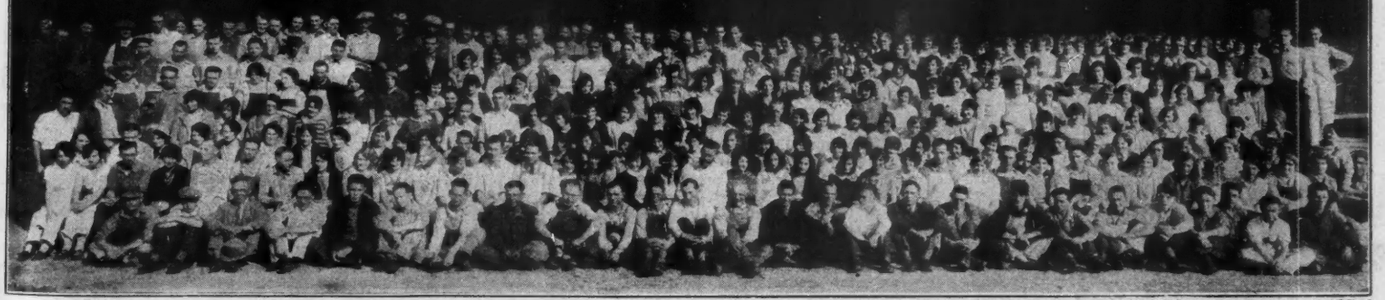
The company believes that the apple and fruit production of the country should be largely operated by family farmers. The company's orcharding operations serve as demonstration orchards for the industry and on a large commercial scale. To that extent and in that way, we endeavor to benefit the whole industry. Obviously, apples and other fruits can be distributed and marketed economically and efficiently only if the product itself is standardized, advertised and merchandised over the entire markets of the world, and even this cannot be done with maximum success unless a long-time program is adopted and consistently followed.

The ultimate consumer must eventually be able to identify and depend upon the trade-marked apple, just as the public now does on the trade-marks of citrus fruits where the trade-mark is branded on the skin of the fruit. The identifying of the individual fruit by marking the skin or by printed wraps makes it necessary for the producer and distributor to follow his product to the ultimate consumer to see that it reaches its ultimate destination in perfect condition. This can be done by consumer and dealer advertising, and following a consistent merchandising policy through the entire marketing year and from year to year. In other words, the business must be systematized and scheduled in such a way that the wholesale and retail trades know exactly what to expect week after week and year after year. The wholesaler and retailer can thus adjust their programs and methods, and with consumer advertising, consumer co-operation is possible.

System Necessary to Orderly Marketing

THE successful marketing of apples, as of other merchandise, involves a system and method which permits and encourages co-operation all along the line from the producer to the consumer. The railroads themselves are very vitally interested in an orderly movement of the crop.

American Fruit Growers, Inc., markets apples from practically all the important commercial producing districts. Likewise, its distribution and sales system covers the whole world market, so that its sale prices are made each day on a basis of the total world demand. This insures full value and an accurate measurement of values. For more than six weeks prior to the harvest, it is necessary to fix opening prices in order to make quotations for future delivery *(To Page 13)*



An apple packing crew at the Tenth Stree.. acking House, Wenatchee, Wash. This plant of American Fruit Growers, Inc., has a daily capacity of 15 cars.

TRENDS in AMERICAN APPLE PRODUCTION

By CLAUDE WOOLSEY
Horticulturist, American Cyanamid Company

Although Commercial Apple Plantings Are on the Decrease, Production Has Been Stepped Up to the Extent That There Is a Constant Increase in Commercial Production, Giving Rise to Some Vexing Problems.

THE APPLE GROWER is somewhat discouraged with conditions. He is, however, in much the same "boat" as some merchants and bankers. The grower at present has both production and marketing troubles. The removal of arsenical residue, for example, has added to the cost of production. Buyers at first were afraid of washed apples, but the work of the experiment stations and washing machine manufacturers proved the practicability of this manner of residue removal. Washing machines are expensive for individual ownership. Co-operative ownership would, no doubt, solve this problem.

Along with washing troubles and selling troubles, freight rates went up in many producing sections. Machinery and materials were high and labor had to compete with industrial wages in many instances. Bad season has followed bad season. Prices were low when the crop was large. Other years showed crop failures. All this has happened since the "rosy" days of 1919, when prices were high and production favorable.

The Post-War Boom

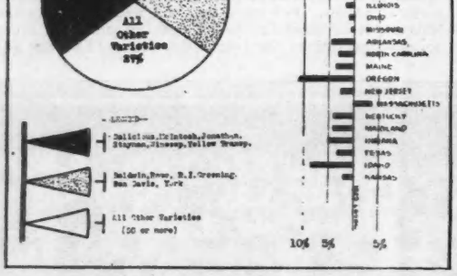
THE post-war conditions inflated prices and the selling prices for orchards soared. Many a "new-comer" spent his last thin dime for one of those gold mines and had nothing left to operate on. Old-timers became enthused with the contagious spirit of the boom and bought new orchards or planted new ones. The banks jumped in and loaned money right and left on this high-priced land, and then everyone waited. Poor crops, poor markets and increasing costs have been taking them one by one. At this time there are many growers whose orchards have suffered from the long drought. Many of the growers, along with their orchards, have suffered the last "suffer" as far as apple growing is concerned. The growers will go back to the office, factory or shop. Others will hang on or have been "hung on" by the banks. The careful, trained operator is hanging on with the proverbial bull-dog determination and will see it through.

The leaders see promise ahead; a rainbow following the storm. "Old man economics" is gradually weeding out the marginal producer. Unproductive orchards will come down or will be left neglected.

Number of Trees Reduced but Increase in Production Expected

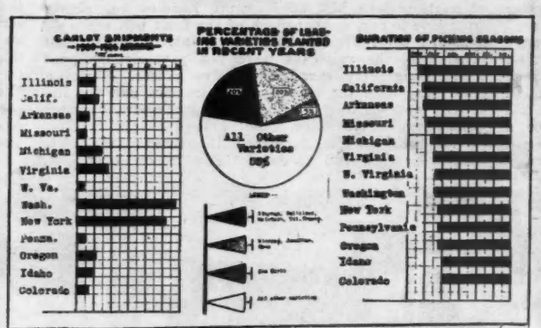
IN spite of all these discouraging factors, apple production will be on the increase as better management is given the orchards. In many sections the number of trees is decreasing but production is not changing, or may be increasing.

In the Outlook Report for 1930, the Federal Bureau of Agricultural Economics states that a gradual tendency toward increasing production is the prospect which the apple grower will have to face for the next several years. The efficient grower, however, will meet this situation by following improved practices which keep production costs down and quality up.


PERCENTAGE OF VARIETIES SHOWN BY ANALYSIS OF MARKET SUPPLIES
ACREAGE CHANGES IN LEADING STATES 1925 to 1929
All Other Varieties 37%
10% 5% 5%

The market began seriously to be disturbed as far back as 1916 by the production from the Pacific Northwest which was a result of rapid expansion 20 to 25 years ago. Some adjustment has been made in the last few years.

The extensive post-war plantings in practically all of the areas east of the Rockies can be traced to the high prices during and immediately following the World War. These plantings which are now coming into full bearing foretell an increase in commercial production over a period of several years. Surplus productions and low prices are indicated in seasons of favorable production throughout the apple-growing areas. Recent plantings, however, have been moderate and a large acreage of old trees has been abandoned.



LOCALIZATION OF COMMERCIAL APPLE PRODUCTION IN U.S.
Figures denote number of trees, all ages, in commercial orchards, in 1929.

In 1929 there were about eighty-two million apple trees in the commercial orchards of the United States, distributed as follows: (Thousands of trees, last 000 omitted) Maine 2025, New Hampshire 608, Vermont 398, Massachusetts 1715, Connecticut 682, Rhode Island 147, New York 9042, Pennsylvania 4691, New Jersey 1739, Delaware 886, Maryland 1368, West Virginia 4511, Virginia 7132, North Carolina 2075, South Carolina 197, Georgia 922, Alabama 240, Tennessee 13-5, Kentucky 1682, Ohio 3481, Michigan 4410, Indiana 1351, Illinois 4062, Wisconsin 856, Minnesota 505, Iowa 862, Nebraska 402, Missouri 3092, Kansas 1059, Oklahoma 828, Arkansas 3041, Texas 89, New Mexico 501, Arizona 56, Colorado 1066, Utah 475, Idaho 1337, North Dakota 58, Montana 508, Washington 6367, Oregon 1995, California 4159.

Better Management Will Be Responsible for Increase

A SPECIAL census of commercial apple orchards in 33 States producing 90 per cent of the United States apple crop was recently made by the United States Department of Agriculture. According to the survey, approximately 30 per cent of the apple trees in commercial orchards were nine years or less of age, while around 70 per cent of this group were less than 19 years of age. The figures show that a large proportion of the trees are at their prime from a standpoint of bearing, but present knowledge and care will no doubt keep them producing longer than in the past. There is also a large number of young trees yet to come into bearing. The newer orchards are located on better sites. These factors no doubt will have a marked effect on total production in the future.

Surveys have repeatedly shown a decrease in total number of apple trees in many sections. This is due in part to decrease in family orchards, and in the increase in number per acre of the young plantings, many of which were interplanted. The apples produced in large quantities in the small home orchards are a source of potential market supply at all times. In seasons of heavy production, they tend by poor quality and sheer weight of production to exert a depressing effect on prices. The following excerpt from the Outlook Report of 1930 indicates trends of plantings in the two important apple producing sections of the United States:

"In the barreled-apple States, recent commercial plantings have been fairly heavy, and at the beginning of 1928, about two-thirds of the trees reported in the survey of commercial orchards, were less than 19 years of age. Nearly one-third of the trees were under nine years. The pronounced movement towards better management of commercial orchards may be expected to become a factor of increasing significance, and thus contribute materially to the bearing capacity of commercial orchards in the barreled-apple states."

Northwest Production Near Peak

EVIDENCE each year becomes more convincing that production in the Northwest is near its peak. Yearly production in the boxed-apple States during the last four years was 80 per cent higher than the average of 10 or 15 years ago, but only 4.5 per cent greater than the average of four to eight years ago. At the beginning of 1928, only 13 per cent of the trees reported in the survey of the commercial orchards of the four principal western States—Washington, Idaho, Oregon and California—were under nine years of age.

Recent plantings have been light and removals in the less favorable sections have continued. About 70 per cent of the trees of the commercial orchards of these four States are less than 20 years old, but in the West, as a whole, no material increase in production is in sight.

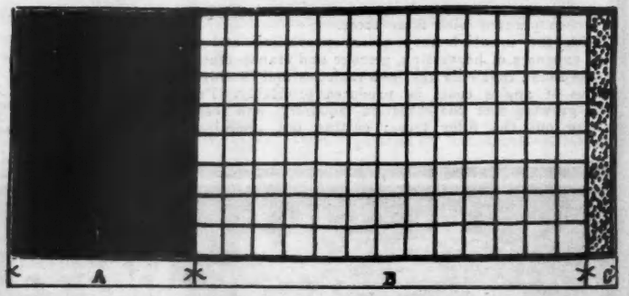
The boxed-apple States contributed a large part of the increase in commercial apple production of the United States. Productions in these States increased from about 19,000,000 bushels per year during the period 1909-1913 to about 55,000,000 bushels annually during the years 1925-1929.

Leading Varieties in Recent Plantings

THE analysis made by the Federal Bureau of Economics in 41 cities in the 1929 season showed that Delicious, McIntosh, Jonathan, Stayman, Winesap and Yellow Transparent provided 43 per cent of the total harvest receipts. These varieties were far in the lead among plantings in recent years.

Plantings of some varieties, such as Baldwin, Rome, Rhode Island Greening, Ben Davis and York, have, as a whole, been only moderately made in recent years and little, if any, increase in production is expected from this group. These five varieties made up only 26.8 per cent of the market supplies in 1926. The new plantings of Ben Davis from 1920-1927 made up only seven per cent of the total trees of this variety, showing a marked decline in this variety.

PERCENTAGES OF U. S. APPLE PLANTINGS BY AGE GROUPS



A—Less than nine years, 30%. B—Over nine and less than 19 years, 65%. C—19 years and over, 5%.

The British Embargo and Other Factors Affecting Distribution and Consumption

RECENT regulations of British and Scotch authorities prohibit the entry of apples into England between July 7 and November 15, except *(To Page 13)*

Sound, Steady Development

Here is a two-ton International Speed Truck in the orchard country of New York

EVEN its best and oldest friends have been surprised at the rapid rise of International Harvester in the automotive world. The gains in International Truck production and in International registration throughout the United States have been almost sensational.

There is nothing artificial or temporary in this success. It would, in fact, be hard to cite a better example of *sound and steady development* in American industry and business than this rise of International Trucks. The truck-building knowledge accumulated since 1904 (twenty-six years ago) has been apparent in each new year's output of Internationals. Constantly improving design, rigid quality standards, and a forward-looking service policy—all have contributed to the growing reputation.

Today the rising preference for Internationals forms as reliable a gauge as you can get of truck values. The proof of the pudding is in the eating, and the proof of the truck comes out on the job. It is impossible to do what International Trucks are doing without being *good.*

See this year's line-up of International Trucks at the nearest International dealer or at one of the 180 Company-owned branches in the United States and Canada. They will be glad to demonstrate any of them for you.

International Trucks include the ¾-ton Special Delivery; the 1-ton Six-Speed Special; Speed Trucks, 1½, 2, and 3-ton; and Heavy-Duty Trucks to 5-ton.

INTERNATIONAL HARVESTER COMPANY
OF AMERICA
606 S. Michigan Ave. *(Incorporated)* Chicago, Illinois

The Six-Speed Special

The scene above shows the popular Six-Speed Special—the original heavy-duty Speed Truck with six forward speeds. Through its 2-speed axle it combines high road speed with tremendous pulling power for gumbo, steep hills, and soft fields. It has sturdy members throughout, good looks, and 4-wheel brakes. Capacity loads always come through, so long as the wheels can reach the road bottom, when a Six-Speed Special is on the job. Ask for a demonstration of this sturdy International. *Write us for a catalog.*

INTERNATIONAL

INTERNATIONAL TRUCKS

QUESTIONS and COMMENT

Conducted by T. J. TALBERT

Questions on fruit growing problems and on general horticulture will be answered through this department if of general interest. For reply by mail enclose 2c stamped envelope (air mail 5c). Address AMERICAN FRUIT GROWER MAGAZINE, 53 West Jackson Blvd., Chicago.

Profitable Winter Work

MANY SUCCESSFUL orchardists now believe that no other seasons of the year afford greater opportunities to do worth while and effective orchard work than the fall and winter seasons. This is true due to a number of reasons, most important of which are as follows: (1) Many insect pests and diseases may be attacked in their dormant or inactive stages, and (2) the fruit grower in general is not so busy or is not compelled to work under so much pressure as at other seasons of the year. This, therefore, allows him to give his problem and work more careful consideration, which often enables him to complete the task at hand in a more satisfactory and efficient way. Moreover, many orchard operations can be performed more effectively and should be done during the so-called dormant season or during the fall and winter.

Rabbit Control

FRUIT trees of all kinds are subjected to more or less serious injury each year by rabbits. In fact, the injury is generally great enough to warrant the protection of all young fruit trees especially against danger of injury. It is important, therefore, that the fruit grower anticipate damage and guard against it.

Use Wrappers.—Some of the most common wrappers consist of one-inch mesh poultry wire, galvanized window screen wire, galvanized wire netting having three or four meshes to the inch, or newspapers, gunny sacks torn in strips six to eight inches wide, and in some cases even cornstalks. It is also true that wood veneer wrappers, patented wire wrappers, tar paper, building paper, and other wrappers are sometimes employed.

As a rule, the wrap should be placed around the tree trunks about the time the leaves drop in the fall. All the wrappers with the exception of wire should be removed early in the spring. Other wrappers, such as newspapers, gunny sacks, building paper, wood veneer, and the like, wrapped around the tree trunks may form a harbor during the growing season for insects and diseases. The bark of the tree trunks when so enclosed may not develop normally. The permanent wire wrappers do not have this disadvantage and may remain around the tree trunks without attention, except to see that they remain in place and do no injury until the trees come into bearing or reach the age of from six to eight years. The permanency of wire wrappers and the saving of labor in wrapping and unwrapping each year makes them the cheapest in the long run.

Prevent Injury by Field Mice

IT is generally believed that the unusual drought may cause greater injury than usual to orchards from mice. We may reasonably expect that there will be an earlier migration of the so-called pine mice to the orchards in search of food. The migration may be expected to be larger than in normal years. This may be due to the small supply of available food in their natural summer and fall habitat.

The best authorities generally agree that baiting mice in the orchard in the late fall about the time cold weather begins and again three or four weeks later constitutes the best prevention of injury. It is also well to apply the bait in the early spring months, as this is the period during which the supply of food for the mice in the orchard may be scant. Mice also breed abundantly in the early spring and if the poison is applied then, this may tend to prevent increases.

The United States government operates a poison bait plant at McCammon, Idaho. Through a co-operative arrangement, poison bait from this plant is made available to fruit growers at cost of materials plus freight or express.

Many trials and investigations have shown that this bait is very effective and that the cost may be less than one cent a tree on the acre basis.

For those interested in securing bait from the government station, it is suggested that they get in touch with their county agricultural agent through whom arrangements may be made for securing the quantity of poison bait desired. Methods of distributing the poison may also be secured from the station.

Destruction of Orchard Litter

TOO much emphasis cannot be placed upon the matter of destroying orchard litter, consisting of old dead limbs, faulty apples, and any other materials that may afford artificial cover for codling moth. This is important, as investigations have shown that in general many more codling moth winter under artificial cover such as may exist under brush, limbs, packing materials near the packing shed, etc., than winter over on the trees or under natural conditions in the orchard.

It is important also in this connection that the grower house in the packing shed at least before springtime all packing materials and equipment in which codling moth may harbor or winter. It is doubly important that the packing shed be screened or enclosed in such a way as to prevent codling moth from escaping from the enclosure to the orchard in the springtime.

For young orchards and on land which does not wash badly, plowing or disking may be valuable in the destruction of not only codling moth but curculio. Moreover, much organic material, consisting of leaves, grass, and weeds, may be incorporated in the soil and made into humus which will be valuable in conserving and creating additional plant food. Such cultivation will aid greatly in preventing damage by field mice.

Transplanting

EXPERIMENTAL investigations of the season of transplanting and the subsequent effect upon fruit trees have received little attention by investigators. Spring planting is preferable toward the north, while fall planting is generally considered best toward the south, due to the difference in climatic conditions. Fall planted hardy fruit trees and most hardy deciduous shrubs have given better results under Missouri conditions than when spring planted. Sour cherries suffer no appreciable mortality when planted in the fall. Early fall-planted trees begin root growth no sooner than late fall-planted trees. Root formation starts about the first of January and proceeds slowly throughout the winter below the frost line. There is no advantage in a winter mulch in Missouri orchards. Young apple trees should have their branches pruned back as soon as possible after transplanting. Autumn wounds stimulate greater growth than spring wounds. Spring transplanted trees should be set no deeper than they stood in the nursery, while trees transplanted in the fall may be set from one to one and one-half inches deeper.

The Time to Prune

SOMEONE has said that the time to prune is when your knife is sharp. There is a great deal of truth in this statement, because pruning work, if done properly, may be helpful at any season of the year in the formation of the main branches and in the elimination of thick clusters of branches which cause excessive shading of fruit spurs. Pruning at any season may also be helpful through the removal of dead and badly diseased limbs and broken branches. In general, however, it may be said that the principal work should be done some time after the leaves drop in the fall and before they appear in the spring.

Any time during this dormant season when men may work comfortably out of doors, pruning work may be carried on with profit. With large orchards one of the main problems confronting the grower is the matter of securing labor for the pruning work. The question is not, therefore, so much a problem of when it should be done as it is a matter of getting the pruning done. It is true, however, that labor may usually be secured with less difficulty during the fall and winter than during the early spring just as growth is starting.

San Jose Scale Control

SAN JOSE scale, on account of its inconspicuous appearance on fruit trees, may not be recognized as injurious until it has caused great damage. The first indication of its presence is usually noted by the weakening of the trees and the drying of small twigs. Branches and twigs, seriously infested, will show on examination a scurfy or ashy appearance, and the bark will be found to be crusted over with hundreds of minute scale insects no larger than the head of a small pin. If the bark of the infested area is cut with a knife, the inner portion may show a reddish discoloration.

San Jose scale is likely to injure badly the large limbs of peach trees before it is serious on the small twigs. Badly infested trees may also show injury of the scale on the leaves and fruit. During the spring and summer the infestation on the foliage and fruit may show reddish colored spots or blotches around each tiny scale. If trees are not sprayed properly, they may be killed in about three to five years.

The great danger of San Jose scale is due, first, to its inconspicuous appearance on the bark of the trunks, branches, and twigs of the trees; second, to its rapid multiplication which makes it able to seriously affect the trees in a comparatively short time; and, third, to the difficulty of controlling the insect until the grower has learned how to spray thoroughly and properly.

While San Jose scale must be considered one of the most serious insect pests of the orchard, yet it may be effectively controlled by proper spraying. Use dormant applications of concentrated lime-sulphur 1-7 or 1-8. Moreover, growers in all fruit growing districts are now using successfully standard oil emulsions at dilutions recommended by State and Federal experiment stations and manufacturing concerns.

San Jose Scale and Peach Leaf Curl.—If San Jose scale and peach leaf curl must both be combated, these troubles may be controlled by using a 2% lubricating oil emulsion with Bordeaux, made according to the 3-4-50 formula. Where San Jose scale is not present, the Bordeaux alone or lime-sulphur 1-15 or 1-20 is effective. One spraying is sufficient, and it may be made in the fall after the leaves drop or in the spring before growth starts. In the control of peach leaf curl, it is imperative that the work be done before the buds swell in the spring. For both San Jose scale and peach leaf curl, thorough spraying cannot be emphasized too strongly. Unsprayed or partly sprayed buds may show the scale and curl.

Fortunately for the fruit grower, it is not necessary to apply a separate spray for the control of each insect pest and fungous disease. It is possible to use combination sprays which will control the different kinds of insects and fungous diseases present at one application. In the first summer spray, for example, we may add to the lime-sulphur solution arsenate of lead and nicotine sulphate, making a combination spray capable of controlling biting and chewing insects like curculio, sucking insects like aphids, and fungous diseases like apple scab. The lime-sulphur acts as the fungicide, preventing the germination of the spores of the scab fungus; the arsenate of lead poisons the curculio; while the nicotine sulphate paralyzes and kills the aphids when applied to their bodies

Fruit Growers' Questions Answered

Unfruitfulness of Apples

My apple trees bloomed last year and the year before but they did not bear any fruit. Please tell me what to do for this trouble.—*C. B., Florida.*

IT IS POSSIBLE that your trees fail to set fruit because of a lack of proper pollination facilities. That is, if there is only one variety of apple growing in the particular locality, this variety may be self-sterile during most years. The introduction of another variety might correct the difficulty and cause the setting of fruit.

On the other hand, your trouble in securing a set of fruit may be due to a lack of vigor in the trees, which might be overcome by cultivation or fertilization, one or both.

Again, the lack of bearing may be due to disease and insect attack. With proper and timely spraying, the pests should be controlled and the fruit should set and develop profitably upon the trees.

Box Elder Bugs

Our orchard is infested with millions of red bugs, not lady bugs, but red bugs, which as they get older, turn sort of brown. I am inclosing a drawing of them. These bugs prefer the sunny part of the orchard and move with the sun all day long. They are all over the place. With this meager description and drawing, I hope you will be able to tell me what they are and how to get rid of them.—*J. Y., Illinois.*

IT IS OUR OPINION that the red bugs which you describe are what are generally known as Box Elder bugs. These bugs usually collect in large numbers on trees of various kinds at this season of the year, particularly the Box Elder.

The bugs do not at this season do any particular harm to plants, but they may attract a great deal of attention.

The best remedy for the destruction of the insects is generally secured through spraying with hot water, kerosene emulsion or by flaming with a torch.

Winter Injury

Last November I set out 125 apple trees. Early this spring when I pruned them, 47 of them were dead and the rest were a sorry looking bunch. They were covered with black spots, as per the rough diagram attached. These spots extended around the branches and the body bark was dead. At this date 102 are dead. Am enclosing a twig cut from one of the trees for your inspection. I would like to know what, in your opinion, has caused these trees to die. They were set in red clay soil on ground rolling to the southwest. In one of the rows I set five apple trees of another variety and they are all living and looking fine.—*M. F. S., Illinois.*

AN EXAMINATION of the apple branch which you sent and a consideration of the description which you give of the apple trees leads us to believe that the damage is due to winter injury. The unusually low temperatures of the winter 1929-30 caused considerable injury to fruit trees throughout the central States. This was particularly true in reference to peaches.

Where for any reason trees were not properly matured before digging for transplanting last year, they suffered more injury than those which were allowed to grow late and hold their leaves until they were forced to drop by cold weather. As long as the leaves remain on the trees during the fall, they continue to manufacture food materials and assist materially in maturing wood and bark tissues, thus enabling them to withstand low temperatures better than trees which have been stripped of their leaves and dug early.

In all probability you should dig and destroy the remaining trees in your orchard, as no doubt they will prove unsatisfactory, as they have been stunted and will continue to make a poor or unsatisfactory growth. It is suggested that you start again with new, vigorous, well-matured trees and plant them on well prepared ground. Moreover, it is important that you be prepared to cultivate, fertilize, prune, and spray properly until the trees come into bearing.

Grapes Need Sunshine

Last year my Concord grapes were fine, with nice, large, full bunches. This year there are some nice but small bunches. However, most of the bunches have from two to eight ripe grapes, the rest being small, green ones, which are commencing to shrivel up. I do not understand why there are a few nice grapes on some of the vines, unless they get more sun. What do you think is the trouble?—*C. E. R., California.*

IN ALL PROBABILITY, the weather conditions of the year 1930 are responsible for there being perhaps more green berries in grape bunches than usual. The season 1929 was much more favorable for even ripening of such varieties as Concord.

It is very true, as you state, that sunshine is very important for the proper development and ripening of grapes; and where vines have been pruned so as to admit sunlight in sufficient quantities to cause the proper development of the berries as well as the shoots, less trouble will be experienced from diseases.

Most grape growers do not prune their vines as severely as they should for the production of the maximum quantity and the best quality of grapes.

Apple Borer Control

Can you tell me the best way to control apple borers? The trees, which are all young ones, are affected at the level of the ground. The borers work around the trees until they are dead.—*M. F. C., New Hampshire.*

THE MOST practical and worth while methods of controlling apple tree borers consist of first giving the trees good cultivation and sufficient fertilization to produce a vigorous strong growth. Some spraying to keep the leaves in a good, healthy, functioning condition may also be required. If this is done, rarely will injury by borers be serious.

An application of lime wash, made thick enough to be applied with a paint brush or thin enough to pass through a spray nozzle, may be applied from time to time through the summer, beginning about the last of June or the first of July and keeping the tree trunks thoroughly covered. This may be a valuable preventive measure. Some growers add one and one-half to two pounds of arsenate of lead to every 50 gallons of whitewash when the same is applied as a preventive against borers. The poison increases the adhesive qualities, and it is possible that some of the borers may be destroyed by the poison in attempting to enter the trees through the paint.

Golden Delicious Apples, Wire Worms and Cut Worms

I have ordered 23 Golden Delicious and Starking apple trees to be delivered this fall. Would sandy or clay loam be best? The land I call clay loam is wet in spring but by the first of May is quite dry. We use it for peas, beans and corn. The sandy loam has been planted three years to beans and potatoes and the land is fairly good. How soon does the Golden Delicious bear? Is there anything we can do for wire worms, which spoil our potatoes, also cut worms?—*E. V., Maine.*

IN GENERAL, it is our opinion from the description which you give that the sandy loam will be better fitted for your apple orchard than the clay loam. This should be true on account of the possibility of better draininge in case of the sandy loam and aeration. Moreover, the sandy loam, according to your description, appears to be equally as fertile as the clay loam.

For the central States area, the Golden Delicious apple is regarded as one of the best yellow varieties to be planted on a commercial scale. For your particular conditions in Maine as regards to planting this variety, it might be well to make inquiry regarding the advisability of planting the variety to your own Agricultural Experiment Station Department of Horticulture, located at Orono.

Well-grown Golden Delicious trees may under favorable conditions bear a fairly good crop, considering the size of the trees, at six years of age. Some apples may, of course, be borne earlier than this, even when four or five years old, but such crops on young trees are usually not very profitable.

As a rule, the careful planning of a crop rotation is the best means of controlling wire worms. Fall plowing of the soil as deeply as conditions will permit and cultivation may also assist in destroying the pest. Since clover and related plants are not injured, it is wise to use one of these legumes in the rotation following sod. No applications to the soil will be of assistance in destroying the worms.

Cultivation late in the summer and fall plowing, keeping down weeds and grass in the fields generally help materially in the control of cut worms.

In the spring, to prevent damage to field and garden crops, poison bran mash is often made use of. The formula and method of distributing follows:

Paris Green (or white arsenic), ¼ pound
Bran.....5 pounds
Molasses.....1 pint
Orange or lemon.....1 fruit
Water.....Enough to moisten

Mix the poison and dry bran. In a separate container add the molasses and fruit juice to the water; also grind or cut up the pulp and add it. Then mix the sweetened water with the bran and poison. The poisoned mash should be made into small balls and scattered about the bases of the vines late every evening as long as cut worms remain troublesome.

Killing Tree Stumps

Some time ago I read in your magazine an inquiry in regard to killing stumps without burning them or pulling them out. I think the reply told of something that could be painted on them to stop suckers from growing. The formula had salt in it, also poison, so stock had to be kept out for a year. If you can tell me what was used, I will thank you very much.—*D. C., Massachusetts.*

THERE are many chemicals used as weed and tree killers. Of these common salt is perhaps the one most often used.

Hot brine (one pound of salt to one gallon of water), is useful in destroying some species of woody plants when placed on the cambium or growing layer, which is located between the bark and wood. This is also a satisfactory herbicide for weeds and grass along walks and roadways. A copper sulphate, or blue vitriol, solution containing eight to 10 pounds to 50 gallons of water, is often effective when applied as suggested for the use of common salt.

Moreover, iron sulphate at the rate of one and three-quarters to two pounds to one gallon of water is a good herbicide.

Some of the soluble arsenical compounds in general form the most effective herbicides known. In fact, these arsenicals usually form the basis of practically all of the various proprietary herbicides and weed and tree killers on the market.

One of the simplest arsenicals is arsenite of soda. For use it is only necessary to dissolve this in water at the rate of about one pound to three gallons of water. This may be applied to the cut surface of the trees, and it is particularly important that the growing layer near the bark be thoroughly wet and covered with the poison.

In the use of all poisons, it is important that livestock of all kinds be kept away from the trees or other plants treated until all traces of the poison have disappeared.

In this connection it is generally safer and more economical for the average grower to keep the sprouts or suckers cut away from the tree stumps until the stumps have decayed instead of using poisons or other substances to prevent sprouting.

F. I. C. Banks Report Progress

THE TWELVE Federal Intermediate Credit Banks have been in operation a little more than seven years and during that period up to August 31, 1930, they discounted farmers' notes amounting to $335,195,351 for more than 650 financing institutions and renewed loans aggregating $165,639,874, making a total of $500,835,225. These banks also have loaned to more than 90 co-operative marketing associations, including renewals, approximately $548,376,267. These figures are cited in a new pamphlet just issued by the Intermediate Credit Banks, showing, in part, of what service these institutions have been to agriculture to date. The outstanding loans on September 30, 1930, amounted to $123,000,000.

In addition to discounting agricultural paper for, or making loans secured by such paper to, State or national banks, agricultural credit corporations and similar financing institutions, the Federal Intermediate Credit Banks make loans to co-operative associations composed of persons engaged in producing, or producing and marketing, staple agricultural products. The notes of such co-operative associations must be secured by warehouse receipts or shipping documents covering staple agricultural commodities. The amount which a bank will lend in any case depends upon the character of the commodity offered as collateral, the management and financial condition of the association, the marketability of the product and other factors. In no event may the banks lend to such associations more than 75 per cent of the market value of the products pledged as collateral.

They had a fearful row. "But for one thing," she sobbed, "I'd leave you, you brute, and go home to mother."

"And what's that one thing?"

"M—mother's coming here. She's leaving father."

Hindrances, obstacles and disappointments mean nothing to a person who has the right kind of stuff in him.

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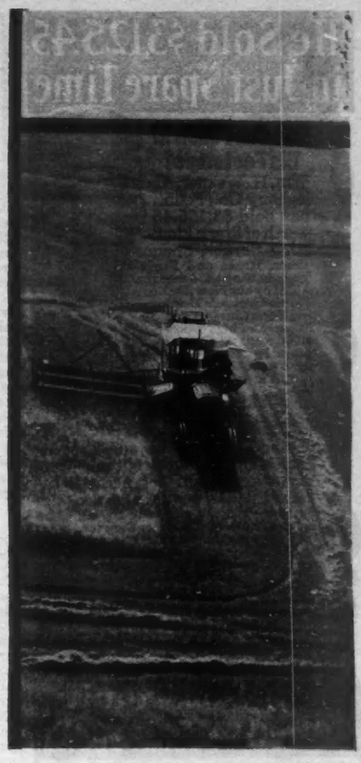

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FRUIT and VEGETABLE REVIEW

By PAUL FROEHLICH
U.S. Bureau of Agricultural Economics

IN SPITE of the drought and heat during the summer months, most crops by October had turned out better than previously expected. Total carlot movement of fruits and vegetables reached its annual peak of about 35,000 cars weekly during early October.

The prospective production of 15 fruit and nut crops combined increased more than 2% during September, and production is now expected to average more than 20% above the short fruit crop of last year. On the whole, the total supply of tree and vine fruits will be close to the usual average, somewhat greater in total pounds, but less per capita. Judging from the condition reported, production per tree or vine averages about 7% less than the average of the last 10 years, but the total acreage is gradually increasing.

Grapes Plentiful

THE season has been favorable for holding to a minimum the losses from grape diseases, which tends to compensate for the reduced size caused by drought in most of the States east of the Rocky Mountains. The grape crop matured earlier than usual and is of good quality and high sugar content. The estimated production is 2,350,000 tons, which is about 12% more than that of last year and about equal to the five-year average. The production outside of California is indicated to be about 4% less than last year's crop but about 8% more than an average crop. Michigan, New York, Ohio and Pennsylvania, which usually produce about 70% of the grapes exclusive of California, will apparently have a slightly larger crop than in 1929, when production in those States was about 7% heavier than usual. According to October condition, California expects 432,000 tons of table grapes, 463,000 tons of wine varieties, and 1,193,000 tons of raisin grapes.

By the middle of October, California shipments were averaging around 1500 cars daily but were heavier than a year ago. Cash-track prices of table stock had remained almost unchanged at 50c-65c per lug box or 4-basket crate. A much better demand was reported for juice grapes, and prices at shipping points in California advanced to a range of $35-$42.50 per ton of black varieties and $27.50-$37.50 per ton of white varieties.

The Grape Control Board was making every effort to strengthen the market position of this fruit, and the Raisin Pool had bought up large quantities of raisin grapes. Press reports indicated that 320,000 tons of raisin grapes had been purchased on the vines by the Control Board. This is equivalent to 85,360 tons of dried raisins. Removal of this portion of the crop from market competition and a shortage of about 20% which had developed in the estimate of tonnage of raisins already on the trays, was expected to place raisins in a much stronger position.

Eastern grape movement was at its height about October 1, with Michigan, New York and Pennsylvania very active. All eastern grape States together were shipping slightly over 150 cars daily, and their season was expected to be finished by the latter part of October. Juice factories were taking considerable quantities of grapes. Shippers in southwestern New York were getting $42.50-$55 per ton, including baskets, while central New York reported a range of $37-$44. At loading stations in southwestern Michigan the f. o. b. price of 12-quart baskets was about 30c, and the 4-quart baskets averaged close to 13c. City prices were moderate.

Apples in Cold Storage

THE shorter crop of eastern apples this year is reflected in the cold-storage report for October 1. Some varieties also were harvested later than last season. Commercial cold-storage houses reported 496,000 barrels under refrigeration, as against 735,000 at the beginning of October, 1929, and a five-year average of 641,000 barrels. The holdings in boxes were 1,956,000, compared with 901,000 boxes in 1929 and an average figure of 1,340,000. Bushel baskets of apples in cold storage totaled 1,800,000, or only 7000 more than at the same time last season, but much higher than the five-year average of 894,000 baskets. Combined holdings were equivalent to 1,748,000 barrels, or 7% more than on October 1, 1929, and 26% above the average holdings for this month.

Latest Crop Report

AS the apple harvest progresses, the fruit appears to be making more volume than was previously expected. The October 1 forecast of a total apple crop of 153,370,000 bushels is 5% above the expectations one month ago. The crop now in sight is 8% larger than the short 1929 crop, although 15% below the average of the preceding five years. The commercial apple crop, or that part which is to be marketed for consumption as fresh fruit, is expected to make up a larger proportion of the total than usual. Commercial production is forecast at 31,860,000 barrels (95,580,000 bushels) or about 62% of the total apple crop, compared with the five-year average production of 32,370,000 barrels or 54% of the average total production. All geographic divisions of the country registered practically equal improvement during September. The total crop in the North Atlantic States is now expected to be about 2% larger than average but in the North Central States is 45% below average production. The South Central States have less than half an average crop and the South Atlantic group less than two-thirds of an average. The best prospects are in the three Pacific Coast box-apple States, with a crop about 20% above average.

Washington was making exceptionally heavy shipments by October 10, averaging around 500 cars daily. Total forwardings from all States were then at the rate of 1200 cars a day. Several varieties of apples were returning about $1.50 per bushel basket at Michigan shipping points, with Delicious as high as $2. Greenings returned mostly $1.10-$1.20 per bushel at western New York stations. Barrels of Greenings or Baldwins for export ruled $3.75 on an f. o. b. basis. The Potomac Valley area reported Yorks at $3.75-$4.75 per barrel, depending on size of fruit. Other varieties returned $3.50-$4, with 2½-inch Winesaps as high as $4.75. Bushel tubs brought $1.35-$1.50. The general f. o. b. range at shipping points in Washington was $1.15-$2.10 per box of Extra Fancy, medium to large fruit, according to variety. A slightly weaker tone had developed in eastern jobbing markets. All prices were lower than a year ago.

American apple supplies on the Liverpool, England, auction were moderate, though supplies from Canada were liberal. Demand was generally good for sound fruit. A good opening for American apples is expected on the continent of Europe, in view of the generally light crops of this fruit in those countries.

Peach Season Closed

THE 1930 peach season was ended, with a total of 38,155 cars shipped by October 10, compared with 35,450 during all of the 1929 season. The total peach crop is now estimated at 49,255,000 bushels. This is about three and one-half millions more than the crop of 1929, but seven and one-half millions less than the average of the five-year period, 1924-1928. Low winter temperatures and late spring frosts greatly reduced the production in nearly all States except the New England group, New York, and some of the far western States. The crop was practically a failure in Indiana, Illinois, Missouri and Arkansas. Drought reduced the size of the fruit in many of the central and eastern States, but in other respects the quality was generally good.

Pear Movement Waning

THERE was only a small increase in the October 1 estimate of the pear crop over that of the previous month. The crop is now expected to be close to 25,000,000 bushels, which would be about three-fourths of a full crop for the entire country. The 1929 production was slightly above 21,500,000 bushels and the average production of the previous five years slightly below that amount. While the 1930 production is relatively light in most of the central and southern States, it is large in New York and the western States, making the total crop of 24,969,000 bushels the largest on record except for the crop of 1926. Practically two-thirds of this year's pears were produced in the three Pacific Coast States. The crop in these States and in New York this year is about 14% greater than their average production, but the production in the rest

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of the country is indicated to be 28% below average.

Shipments of pears were rapidly diminishing and, by early October, averaged only 150 cars daily, chiefly from New York and the Pacific Northwest. Best Bartletts from cold storage in western New York strengthened to $1.40 per bushel basket. Seckels brought $1.35, and Kieffers only 85c per bushel. Too few f. o. b. sales were being made in Washington and Oregon to establish a price there.

Heavy Citrus Crops

CITRUS fruits still give promise of heavy production. Florida now expects a commercial crop of 13,500,000 boxes of oranges and 9,000,000 boxes of grapefruit. This total of 22,500,000 compares with commercial production of 14,200,000 boxes last year and is only a little less than the record production of 1928. California citrus fruits show a condition nearly 85% of normal.

Movement of Florida grapefruit was very active and was averaging nearly 100 cars daily by mid-October. The Florida orange season also was getting under way. Texas grapefruit will soon be a market feature. Shipments of oranges from California were less than half those of a year ago, with a daily average of only 70 cars. The removal of most of the restrictions on shipments of Florida citrus fruits, placed as a result of the fruit-fly infestation, is reason for great encouragement to growers and shippers in that State. In order to market the heavy crops this season, every outlet will have to be utilized.

Recently, one of the leading journals of the canning industry said:

"Consumption of canned grapefruit is growing by leaps and bounds. Already it has caught up with the nearby possibilities of production. There are grapefruit canners who foresee the time when consuming demand for canned grapefruit will equal present-day sales of canned pineapple, which approximate 10,000,000 cases yearly. So rapidly is the canning industry's latest infant—grapefruit—growing, that to be assured of ample supplies of raw material the cooperative idea is being applied to the business."

In commenting on the above trade report, one of Florida's prominent newspapers said:

"The growers are well pleased with the steadily increasing demand for the fresh fruit, and naturally are glad that the canning of this fruit has created a market for the odd-size and irregular-shaped and dark-skinned fruit. There has been a great waste of grapefruit until the process was discovered by which it could be canned successfully. Now there need be very little waste, if any, from the well-managed grove. From a little understood and neglected fruit of 25 years ago, grapefruit has come to be the most popular breakfast dessert and salad fruit in this country, and expor[illegible] from Florida are reaching into distant points beyond the ocean. Canning grapefruit and extracting the juice, for table and medical uses, has come to be a big industry in Florida, and there can be seen great extensions of the groves and greater attention to grapefruit culture in the near future."

Vegetable Prices Moderate

PRICES of nearly all vegetables were at a very moderate level by mid-October. Potatoes were fully one-third lower than last autumn. Sweet potatoes were not quite up to their 1929 price level. Onion values were at least one-fourth lower and cabbage even farther below the corresponding prices for last season. Celery was dull and cheap, with lettuce prices rather moderate.

The production of late tomatoes was nearly one-fifth heavier than in 1929, with an exceptionally large crop in California. Florida expects four times as many acres in fall tomatoes as last season, or about 1530, while Texas looks for 4170 acres of fall planting, making the two States show a 46% increase over 1929.

The crop of lettuce in the second group of late shipping sections was expected to be 15% lighter than that of 1929, although acreage was increased 10% over plantings of last year. Light yields in California account for the decreased production. Growers of lettuce for the winter market intend to increase their acreage considerably. Arizona may have 16,000 acres, or one-seventh more than last year. Imperial Valley may go up slightly to 39,000 acres, and Florida expects a 50% increase or a total of 2140 acres. Late celery production bids fair to exceed the 1929 crop by 50%.

Potato Crop Increased

PROGRESS of potato harvest in the late States indicated that yields will likely average somewhat higher than was expected one month ago, when the uncertain effect of extensive drought was a primary consideration. The United States production of all potatoes, early and late crops combined, is forecast at 352,200,000 bushels, on the basis of conditions and expected yields reported October 1. This represents an increase of 13,000,000 bushels, or nearly 4%, over the September 1 production prospect. The present forecast indicates that production this year will be 2% smaller than the 1929 crop and almost 11% below the average production for the previous five years. Production in the 19 northern States, usually having a surplus of late potatoes for shipment, is forecast at 237,160,000 bushels, or 8,000,000 bushels (3.5%) more than expected one month ago, although still 8,000,000 bushels below 1929 production and about 37,000,000 bushels below the five-year average. In 16 other northern States, which usually have a deficient supply of late potatoes, prospects increased more than 4,000,000 bushels (6%) during September, the crop now being forecast at 78,570,000 bushels.

Shipments of potatoes reached a high mark of 7300 cars during the opening week of October, and then decreased temporarily to 6700 the second week. Movement at that time was much lighter than a year ago, and the leading late-crop States are about one-sixth short of their record during the early part of last season. Markets were showing customary weakness during the period of active digging of potatoes.

Chicago carlot prices sagged very considerably by October 10 and eastern markets were lower than they had been. F. o. b. prices showed a general decline, with a range of $1.35-$1.40 in northern Maine, $1.60-$1.65 in western New York, and $1.50-$1.60 in the North Central area. Shipping-point values in Nebraska and Colorado were down to $1-$1.25 per 100 pounds, and the southern Idaho cash-track market on best Russet Burbanks had dropped to $1.20-$1.30, with Rurals returning $1. Yakima Valley shippers were getting $25-$27.50 per ton of Russet Burbanks. A general jobbing range of $1.65-$2.50 covered most sales of eastern potatoes in large cities. The Chicago carlot market was down to $1.55-$1.90 per 100 pounds of most kinds of potatoes, with Idaho Burbanks at $2-$2.15.

Light Yield of Sweet Potatoes

SWEET-POTATO prospects improved markedly during September but the yield, estimated at 79 bushels per acre, is still expected to average lower than in any season during 30 years except 1924. Production is now estimated at 67,666,000 bushels, which would be 7% above prospects a month ago, but 20% below production last year and 9% below average production during the preceding five years. During September, prospects improved greatly from South Carolina west to Arkansas and Louisiana, but in the important commercial sweet-potato area, from southern Virginia north, the drought had not been relieved and very low yields are expected.

Terminal market prices fluctuated considerably, but were lower than in the middle of September. Most of the October jobbing sales of Virginia barrels were being made at $2.25-$3.50, with top of $4 in Minneapolis. Texas and Louisiana Porto Ricans were quoted at $1.50-$1.60 per bushel crate in Kansas City. New Jersey bushels of yellow varieties ruled generally $1.25-$1.85 but Delaware and Maryland stock jobbed at $1-$1.15, with southern Nancy Halls only slightly above that range. Shipments were averaging 125 cars daily, more than half of them coming from Virginia.

Cabbage Declines

CABBAGE declined at shipping points and was generally weaker in consuming centers. Domestic-type brought only $9-$10 per ton at western New York points in early October. Danish-type ruled $11-$12 per ton bulk or $14-$16 sacked, on an f. o. b. basis. Southeastern Wisconsin shippers got mostly $9-$10 on domestic and $10-$11 on Danish. Movement from all States had increased to 1470 cars per week, New York and Wisconsin leading. Values still averaged close to 60c per 100 pounds in the northern part of Colorado. Terminal markets quoted New York domestic-type cabbage selling at $14-$21 per ton bulk or at 50c-90c per sack. Danish-type was weaker at $18-$27 per ton or 90c-$1.50 per sack. Northern domestic ruled 75c-$1.25 per 100 pounds. Cincinnati reported northern Danish-type at $25-$27 a ton.

The crop of domestic-type cabbage in late States is now forecast at 266,400 tons and the Danish-type at 284,300 tons. Each kind is 5% heavier than the production of last season. New York and Wisconsin together have 60% of all the domestic-type and about 80% of the Danish-type cabbage this year.

It Rained; but they Had their Party anyway

A Bell System Advertisement

A FARMER'S WIFE living near Adairsville, Kentucky, telephoned the friends of her twelve-year-old girl and invited them to a birthday party which she was giving for her. But when the day of the party arrived, it was raining heavily. A number of the guests telephoned to inquire if the party was postponed. The mother of the young hostess then called all of the other guests and told them that everything was prepared for their arrival. Thus reassured, the children all turned out, in spite of the rain, and every one enjoyed a happy afternoon.

* * *

The telephone is invaluable in keeping up friendly contacts and adding to the pleasures of life in the country. It is a profitable aid in selling livestock, grain, fruit and vegetables, either through local markets or co-operative marketing associations. And it is also a convenient means for ordering farm and household supplies when they are needed quickly.

The modern farm home has a telephone that serves well, day in and day out, rain or shine.

2500.00 1
$2500 2
$2500.00 3
2500 4
$2500.00 5
$2500.00 6
WIN $2500.00
To advertise we are going to give over $7500.00 in prizes. Charles Hoefling, 69 years old, won $4245.00 in recent offer; Walter C. Griswold, a boy just out of school, won $1885.60. Mrs. D. H. Eller won $1800.00. Former major prize winners and persons living in Chicago or outside the U. S. A., not eligible this time. YOU can win $2500.00 now
CAN YOU FIND THE TWIN BAGS?
Be careful! Don't make a mistake! They are not alike—even though they look alike. Only two of these bags are identical in every way. Some have the $ sign, others not; some have a line under penny ciphers, some no line; some have commas between the 2 and 5; some have two tie strings, some none; some one string out to left, others to right. Each one is different from the rest except two—find them—mark them with a cross—send your answer and be qualified for this opportunity.
$415.00 Extra for Promptness
—making total first prize you can win, $2500.00. Find twin bags and send answer today. First prize winner gets $415.00 cash just for promptness. Rush!
John W. Genz, Dept. 79 500 N. Dearborn St., Chicago, Ill.
$2,500 9
$2500.00 10
$2500.00 11
$2500 7
$2500 8
$2500.00 12
$2500 13
$2500.00 14
$2,500.00 15
2500.00 16

THE CURB MARKET

RATES: Per word, for Classified Advertisements in "agate" type, first line capital letters, 15 cents per word, including name and address. No advertisement accepted as less than 24 words. (Minimum cost $3.60.) DISPLAY ADVERTISEMENTS, of type matter only (no illustrations, trade-marks, etc.) set wholly in our type, $19.60 per inch, cash with order. No Display Advertisement of less than 1-2 inch will be accepted. Maximum size one-fourth page (12 1-2 inches). Orders may be sent direct, or through any recognized advertising agency.

AGENTS-SALESMEN WANTED

WE START YOU WITHOUT A DOLLAR. SOAPS, extracts, perfumes, toilet goods. Experience unnecessary. Carnation Co., 278, St. Louis, Mo.

AGENTS—WONDERFUL OPPORTUNITY TO MAKE $10 a day with our big new line of soaps. Highest quality. Beautiful packages. Large orders in every home. Steady repeat business. Big profits. Particulars free. ALBERT MILLS, 5272 Monmouth, Cincinnati, O.

BIG MONEY DAILY SELLING SHIRTS, TIES, Underwear, Sox, Raincoats, Lumberjacks, Sweaters, Leather Coats, Mackinaws, Coveralls, Pants, Children's Playsuits. Outfit FREE! Experience unnecessary. Nimrod Co., Dept. 102, 4922-28 Lincoln Ave., Chicago.

BEES

PACKAGE BEES, WITH YOUNG ITALIAN Queens. Spring Delivery—F. O. B. 2 lbs.—$3.25; 3 lbs.—$3.75. Large orders discounted. Satisfaction Guaranteed. Overbey Apiaries, Opelousas, La.

DOGS

COON, 'POSSUM, SKUNK, RABBIT, AND FOX hounds, trial, cheap. Herrick Hound Kennel, Herrick, Ill.

COONHOUNDS, FOXHOUNDS, RABBITHOUNDS. Blueticks, Redbones, Blacktans. Cash Fur Catchers. Dog Supplies. Sporting Goods. Big Catalogue. Kaskaskis Incorporated, E-39, Herrick, Illinois.

FOR SALE—20 CHOICE SELECT COONHOUNDS trained on wild game. Priced cheap on trial. B104. Kevil Kentucky Kennel, Kevil, Ky.

FARMS AND ORCHARDS

FOR SALE—60 ACRE ORCHARD NEAR TOWN. 1500 choice varieties of APPLE trees in bearing. $500 down payment and terms. Might lease. T. W. Campbell, Dixon, Mo.

RAISE FRUITS AND BERRIES IN FAMOUS Ozark region of Southern Missouri and Northern Arkansas. Thousands of carloads of fruit being shipped annually. Ideal growing conditions, gravelly soil, abundant rainfall, mild winters, early spring assure excellent returns. Exceptional marketing conditions. Good poultry, dairying and general farming section. Pure spring water, healthful climate. Address C. B. Michelson, Colonization Department, Frisco Railroad, 560 Frisco Building, St. Louis, Mo.

FARMS WANTED

WANTED HEAR FROM OWNER HAVING FARM for sale. Cash price, particulars. John Black, Chippewa Falls, Wis.

INSTRUCTION

WANTED IMMEDIATELY, MEN-WOMEN, 18-55, qualify for steady government positions; $105-$250 month; common education; no government experience required; vacations with pay; many needed soon. Write Instruction Bureau, 259, St. Louis, Mo., quickly.

RAILWAY POSTAL CLERKS. $158.00—$225.00 month. Steady work. Common education sufficient. Men 18 to 35. Sample coaching FREE. Write immediately. Franklin Institute, Dept. S65, Rochester, N. Y.

MISCELLANEOUS

ADAMS NO-MO FOR RUNNING FITS, SARCOPtic Mange and Fleas in dogs. Large size $1.00. Money back if it fails. Adams C8 Supply Co., Ramsey, Illinois.

RAISINS. GOOD FRESH ONES, 12c LB., DELIVered by express prepaid, guaranteed minimum order 25 lbs., 4c lb., f. o. b. Live Oak, Calif., J. J. Krebs.

NURSERY STOCK

PEACH AND APPLE TREES 5c AND UP. YELLOW and Blood Red Delicious. Grapevines 3c. Plums, pears, cherries, nuts, berries, pecans, ornamentals. FREE catalog. Tennessee Nursery Company, Box 101, Cleveland, Tenn.

WE SELL ON THE CREDIT PLAN. BEST VArieties. Apple, Peach Trees low as 5c. Grapevines, 3c. Shrubs 10c. Evergreens, 25c. Seeds, Bulbs, etc. Benton County Nursery, Box 501, Rogers, Arkansas.

POULTRY

CHICK PRICES CUT 6½ CENTS IF ORDERED now for spring shipment. Best Egg Strain White Leghorns. Records to 320 eggs. Guaranteed to live and outlay ordinary chicks. Thousands of pullets, hens, cockerels at bargain prices. Big catalog and special price list free. George B. Ferris, 922 Union, Grand Rapids, Mich.

SONG POEM WRITERS

SONG POEM WRITERS—"REAL" PROPOSITION. Hibbeler, D-96, 2104 Keystone, Chicago.

TOBACCO

18 CHEWING OR SMOKING TWIST $1.00 POSTpaid. Ford Tobacco Co., D93, Paducah, Ky.

SPRAY MATERIALS SPRAY MATERIALS

FRUITGROWERS again have succeeded in controlling destructive insects and have picked crops of clean fruit—with the aid of

DENDROL

Dormant Spray Oil

LEAF ROLLER In a Michigan apple orchard, heavily infested with fruit tree leaf roller, where spraying with Dendrol was properly done, and exact tests and records made, the owner estimates he secured 80% clean fruit, free from leaf roller injury. A part of this orchard that was not protected by Dendrol but was sprayed with other material produced 80% culls, because of leaf roller damage. In other large apple orchards where Dendrol was used for leaf roller, it has made possible equally clean fruit. Growers of cherries also report excellent results with Dendrol.

SAN JOSE SCALE Growers, troubled with San Jose Scale, especially in the regions of Missouri and Arkansas where the pest is unusually difficult to control, say that Dendrol is the most satisfactory material they have ever used to protect their trees and fruit against the ravages of this insect.

OYSTER SHELL SCALE Careful tests made on orchard oyster shell scale in Iowa are reported having given complete control with Dendrol at 7%. Dendrol is also recommended for other scale insects.

EUROPEAN RED MITE Growers in Michigan, Massachusetts and other states troubled with European Red Mite report that Dendrol again has given the high degree of kill which they had secured from its use in previous years. Red Mite is becoming increasingly prevalent on peaches. Growers of peaches therefore have an interest in Dendrol.

For information or a copy of the Dendrol Booklet with revised recommendations, write to

STANDARD OIL COMPANY (Indiana)

910 South Michigan Avenue Chicago, Illinois

Coming Meetings of Fruit Growers

AMERICAN Pomological Society annual meeting will be held in connection with the Mid-West Horticultural Exposition at Shenandoah, Iowa, November 12 to 14.—*William R. Cole, Secretary, Amherst, Mass.*

CONNECTICUT Pomological Society fortieth annual meeting and fruit exhibit will be held at Hartford, December 17 and 18.—*H. C. C. Miles, Secretary, Milford.*

DELAWARE. Peninsula Horticultural Society meetings will be held at Bridgeville, Del., December 10 to 12.—*J. F. Adams, Secretary, Newark, Del.*

GEORGIA State Horticultural Society annual meeting will be held at City Auditorium, Savannah, November 11 to 13.—*George H. Firor, Secretary, Athens.*

ILLINOIS State Horticultural Society seventy-fifth annual meeting will be held at Urbana, December 10 to 12.—*H. W. Day, Secretary, Centralia.*

Northern Illinois Horticultural Society meeting will be held at Stockton, December 3 and 4.—*R. A. Green, President, Ottawa.*

INDIANA Horticultural Society meeting will be held at Purdue University, Lafayette, January 14 to 16, 1931.—*K. I. Fawcett, Secretary, Lafayette.*

IOWA. The Eighth Mid-West Horticultural Exposition will be held at Shenandoah, November 11 to 16. The following conventions will be held in connection with the exposition:

Eighty-third annual convention of the American Pomological Society.

Sixty-fifth annual convention of the Iowa State Horticultural Society.

Nineteenth annual convention of the Iowa Beekeepers' Association.

Nineteenth annual convention of the Iowa Fruit Growers' Association.

Seventeenth annual convention of the Iowa Vegetable Growers' Association.

Tenth annual convention of the Iowa Nurserymen's Association.

Seventh annual convention of the Iowa Peony and Iris Society.

Twenty-eighth annual convention of the Society of Iowa Florists.

Federated Garden Clubs of Iowa will hold a conference.

—*R. S. Herrick, Secretary, Iowa State Horticultural Society, State House, Des Moines.*

KANSAS State Horticultural Society annual meeting will be held at Topeka, December 9 and 10, adjourning to meet in Kansas City with the Missouri Valley Horticultural Conference on December 11 and 12.—*W. R. Martin, Secretary, Capitol Building, Topeka.*

MAINE State Pomological Society meeting will be held at Portland, November 18 to 20. The Maine Seed Improvement Association and the Maine Dairymen's Association will meet at the same time and all will hold their exhibitions in the City Hall.—*E. L. White, Secretary, Bowdoinham.*

MARYLAND State Horticultural Society meeting will be held at the Lord Baltimore Hotel, Baltimore, January 6 and 7, 1931.—*A. F. Vierheller, Assistant Secretary-Treasurer, College Park.*

MASSACHUSETTS Fruit Growers' Association meeting will be held at Worcester, January 7 to 9, 1931.—*William R. Cole, Secretary, Amherst.*

MICHIGAN State Horticultural Society winter meeting will be held in the Waters-Klingman Building, Grand Rapids, December 3 to 5. Commercial exhibits of machinery, nursery products, packages and spray materials and an apple show will be held in connection with meeting.—*H. D. Hootman, Secretary, East Lansing.*

MINNESOTA State Horticultural Society annual meeting will be held at Minneapolis, November 18 to 20.—*R. S. Mackintosh, Secretary, St. Paul.*

MISSOURI Valley Horticultural Conference will be held at Kansas City, Mo., in the Shrine Temple, December 11 and 12. It will be participated in by fruit growers from Missouri, Kansas, Arkansas, Nebraska, Iowa, Colorado and other States. Commercial exhibits of spray machinery, spray material, etc., will make up an important part of the conference.—*R. J. Barnett, Chairman, Program Committee, Manhattan, Kans.*

MONTANA State Horticultural Society annual meeting will be held at Stevensville during January.—*W. E. Pollinger, Secretary, Corvallis.*

NEW JERSEY State Horticultural Society meeting and exhibit will be held at Haddon Hall, Atlantic City, December 3 to 5.—*Arthur J. Farley, Secretary, New Brunswick.*

OHIO State Horticultural Society annual meeting will be held at Columbus, February 2 to 4, 1931.—*F. H. Beach, Secretary, Columbus.*

OREGON. Western Nut Growers' Association meeting will be held at Corvallis, December 3 and 4.—*C. E. Schuster, Secretary, Corvallis.*

PENINSULA Horticultural Society meetings will be held at Bridgeville, Del., December 10 to 12.—*J. F. Adams, Secretary, Newark, Del.*

PENNSYLVANIA State Horticultural Association meeting will be held in connection with the State Farm Products Show, Harrisburg, January 20 to 22, 1931.—*R. H. Sudds, Secretary, State College.*

RHODE ISLAND Fruit Growers' Association meeting will be held January 9, 1931. Meeting place to be determined.—*T. H. Matteson, Secretary, Cranston.*

TENNESSEE State Horticultural Society meeting will be held at Nashville, January 13 and 14.—*G. M. Bentley, Secretary, Knoxville.*

VIRGINIA State Horticultural Society thirty-fifth annual meeting will be held at Monticello Hotel, Charlottesville, December 2 to 4.—*W. S. Campfield, Secretary, Staunton.*

WASHINGTON State Horticultural Society annual meeting will be held at Wenatchee, December 8 to 10.—*J. T. Bregger, Secretary, Pullman.*

WEST VIRGINIA Horticultural Society thirty-eighth annual meeting will be held at Martinsburg in February. Dates have not been set.—*Carroll R. Miller, Secretary, Martinsburg.*

WISCONSIN State Horticultural Society annual meeting will be held at Loraine Hotel, Madison, November 19 to 21, in connection with which the State Nurserymen's Association and the State Garden Club Federation will also hold their annual conventions.—*H. P. Rahmlow, Secretary, Madison.*

Size of Nitrate Bag to be Cut in Half

AN ANNOUNCEMENT from Chile reports that the 200-pound bag in which nitrate of soda has been shipped heretofore is to be replaced by a new 100-pound package. The new bag, which can be handled by a good, strong boy, will be introduced this fall.

The new style was adopted after a careful survey of the preference of farmers throughout the country, and is in line with the program of the nitrate producers to improve their service to consumers of their product.

Besides relieving the farmer of the job of tugging 200-pound packages, it is expected that the contents of the smaller bags will arrive in better condition.

Index to Advertisements

The concerns whose advertisements appear listed below are equipped to give prompt and satisfactory service to the American fruit grower. Most of them issue literature that is freely at the disposal of our subscribers. It is to the advantage of all that when writing to an advertiser you use the address exactly as it appears in the advertisement, and that you state in your letter: "I read Your Advertisement in AMERICAN FRUIT GROWER MAGAZINE."

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Trends in American Apple Production

(From Page Six)

where the exports are accompanied by certificate as to grade from the United States Department of Agriculture. This ruling, no doubt, will cause some readjustment among the apple exporting sections and will probably throw a large quantity of "off" grade early fruit on the domestic market. Much of this fruit may go into fruit products. Much of the fruit that was formerly harvested immature and off color will be left on the trees and be offered for sale later either on the domestic or export market.

Argentina also has made some drastic regulations regarding inspection and packages. Conditions, however, are upset politically in this market, and may improve in the future.

Recent figures show that as many or more carloads of bananas are unloaded in the United States as are carloads of apples loaded and, of course, some of the apples are for export.

The increase in the consumption of vegetables, particularly cabbage, lettuce and tomatoes, has had some bearing on the apple consumption in the United States. Better means of storage and production in the various climatic areas has made it possible to offer these products throughout the year.

Co-operation and the Apple Industry

ALL these facts lead to one conclusion. Something must be done for the apple industry in the United States. Helping production and neglecting marketing will not solve the problem. From the grower's standpoint, both production and distribution costs must be lowered. Will co-operation solve the problem? Co-operation will go a long way in the right direction if the co-operators co-operate and the benevolent "outsider" stays off.

Co-operation must come from the inside and grow. Growers, sections, societies and associations must all work together. Why should not the growers own their storage as many now do, purchase supplies, band together to properly sell and distribute their fruit and secure proper legislation? Can they do this and remain as individuals? No. Can they do this and squable and compete with one another, grower against grower, association against association, State against State and area against area? They cannot.

Last winter a prominent horticultural society of one of our apple growing States spent the better part of one afternoon squabbling about paying one penny per bushel on apples for advertising purposes to increase consumption. Nothing was done. Walking the street from the meeting hall one could see bananas offered for sale on every corner and on carts between corners.

The secretary of one horticultural society said at a large gathering that his growers were not interested in the Federal Farm Board. A great many of the leading growers of his section, however, differ with him on this subject. This is an example of the conditions and confusion of ideas that the grower is confronted with.

Everywhere the apple growers are looking for a way out. Who will lead them?

Marketing the Apple Crop

(From Page Five)

to European, South American and other export trade. Accordingly, it is necessary not only to study the government crop estimates, but also to have our own carefully checked estimates of the quantity and quality of the crop in each district; and, more than that, the quantity and quality of each variety in each district.

We must not only satisfy ourselves as to the reasonable accuracy of these estimates, but we must also establish a reputation among the buying trade of the world that we will furnish them accurate information with reference to the status of the crop. We must also have their confidence that the opening prices we name six weeks before the harvest represent an intelligent, fair basis of value for the fruit. In other words, in naming opening prices, it is necessary to do so with such judgment, skill and fairness as will cause our grower clients and our buying clients to be willing to accept our interpretation of the market values and begin the negotiation of sales so that due time may be had for arranging steamship space, financing and distribution at both ends of the line.

Benefits of Standardization

BY the careful standardization of the product shipped out under our established trade-mark, we endeavor to make it as safe for the numerous buyers thousands of miles away to operate with the same security and satisfaction as though they were personally in the orchards inspecting and buying the fruit. Then, too, every assistance is rendered the distant buying trade in making the terms of payment as reasonable as possible. The successful marketing of the great American apple crop not only requires proper production, harvesting, grading, packing, transportation, storage and selling, but, in addition, there is the all-important matter of collecting the proceeds of the sale promptly and accurately accounting for the same to the individual grower.

The physical handling of the fruit is a tremendous problem. The crop ordinarily is harvested over a period of three months and consumed over a period of 10 months. The bulk of the business is transacted during a period of four months. The marketing organization and system employed must, therefore, be prepared to snap into action suddenly and to reduce its operations quickly after the height of the season is over, so as to avoid unnecessary overhead expense.

The marketing of the apple crop is an entirely different proposition from the marketing of the citrus crop. The citrus crop is stored on the trees and harvested proportionately throughout the entire marketing season. The successful marketing of the large citrus crop is comparatively a much smaller problem than the marketing of the apple crop, because the latter must, under present conditions, be sold to a considerable extent to the markets of the world during the harvesting and shipping period. Further, the burden of holding and distributing the fruit during the 10 months' marketing season must be divided among the distributors instead of allowing this burden to be carried by the producer.

Stabilizing Effect of Storage

THERE is a considerable advantage in having the storage of a good proportion of the crop handled by the jobber in the various markets, large and small, because each jobber understands best what variety, grade, size and quantity of fruit he can likely handle to advantage. After 50 per cent of the crop is purchased by jobbers to hold for storage, the jobbers then are as much interested in maintaining healthy, satisfactory market conditions throughout the remainder of the marketing season as are the growers who own the remainder of the crop. Ordinarily the growers probably sell more than two-thirds of the storage apples of the United States to the dealers during or shortly after the harvest period.

[In the concluding installment of this article, next month, Mr. Crutchfield explains in detail the mechanism of marketing the apple crops of the United States.]

Year-Around Fresh Air

ONE OF THE more recent developments in home improvement is a combination system that will heat the house in the winter and cool it in the summer and furnish ventilation every day in the year.

This system consists of a furnace, positive pressure fan, humidifier, filter and automatic control if desired. Even in the severest weather the fan, immediately upon starting, forces heat into every room and keeps circulating fresh, humidified, filtered air at the rate of four changes every hour.

By constantly circulating the air, the cold zone near the floor is eliminated, making it a healthful place for the children to play and live in. This system is easily adapted to furnaces already installed, making it available to homes where furnaces can be used only for heating purposes.

This forced-filtered air system is similar in principle to the air conditioning installations found in fine theatres, hospitals, schools and other types of buildings, and is applicable to small houses as well as large. From the standpoint of economy as well as health, this system has a universal appeal.

WHY?

SCIENCE DISCOVERS IT'S NITROGEN PLUS

FOR years the really successful fruit grower has known that Chilean Nitrate is in every way the most efficient nitrogen for his trees. Invariably it makes better fruit... juicier... larger yield and finest shipping quality. Long time nitrogen experiments in many fruit growing sections prove this conclusively.

But why? What secret properties in Chilean Nitrate make it so much better?

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No. 807—Sports Coat. This style is designed for sizes 8, 10, 12 and 14 years. Size 8 requires 2½ yards of 54-inch material with 2½ yards of 39-inch lining.

Patterns may be secured by mail, postage prepaid, at 15 cents each from AMERICAN FRUIT GROWER MAGAZINE PATTERN SERVICE, 261 Fifth Avenue, New York City. Be sure to state size required. Enclose 10 cents additional for copy of Fall and Winter Fashion Magazine (15 cents where no pattern is ordered).

More Nitrogen—More Apples

BY INCREASING the application of nitrate of soda about his apple trees this year, F. G. Holman, Wilkes county, North Carolina, increased his yield of marketable fruit by one and one-half bushels a tree and secured an extra profit of $1.43 a tree in return.

"Figuring the nitrate to cost $50 a ton and the apples to sell in the orchard at the tree-run price of $1 a bushel, increasing the application of soda from four pounds to eight pounds a tree brought Mr. Holman a net profit of $1.43 a tree," says H. R. Niswonger, extension horticulturist at North Carolina State College. "Mr. Holman also secured a half bushel increase in fruit where the nitrate was applied in September previous to the crop year. The demonstration was conducted with a block of Delicious apples which lacked vigor. Though they were 15 years old, the trees were under-nourished and poorly grown."

In explaining his demonstration with Mr. Holman, Professor Niswonger says in September, 1928, 12 trees were given four pounds of nitrate of soda a tree and this was checked against 12 other trees which received four pounds each in the following spring. The fall-fertilized trees gave a yield of 78 bushels and the spring-fertilized trees gave a yield of 72 bushels. The set of trees giving the yield of 78 bushels were again fertilized in the fall of 1929 with a four-pound application and given an additional four pounds this spring. This was checked against the other 12 trees receiving eight pounds just as the buds were swelling this spring. The split application led in yield, making five bushels more than those getting the equal spring application and 18 bushels more than those getting only four pounds of the nitrate.

Tests made so far indicate that four pounds of nitrate is not enough and that it is probably best to add the material either in the fall entirely or as a split application in the fall and spring, says the horticultural specialist.

Now "Frozen Grape Juice"

SOLID FROZEN grape juice is now being turned out at the rate of 30,000 gallons a day in a new quick-freezing plant just completed by Vita-Fruit Products, Inc., at Lodi, Calif. This is considered by refrigeration engineers as the starting point of the development of a trade in frozen fruit juices of all kinds, to be held in low temperature warehouses until needed, then thawed and bottled as the market demands. It is believed the innovation will level out prices for juice over the year and eliminate a glut during the picking season.

The Lodi plant, the first of its kind in the world, has eight cold storage rooms so heavily insulated with cork that a constant sub-zero temperature can be maintained. Each is 90 feet long, 20 feet wide and 18 feet high, and each holds 10,000 ten-gallon cans of grape juice, a total storage capacity of 800,000 gallons. The insulation is described as unusual. Four inch corkboard, surfaced with a mastic finish, covers the concrete floor; the walls are of six-inch corkboard with mastic finish, and the roof has six inches of corkboard covered with composition roofing.

The juice runs first through a series of refrigerated coils, designed to keep it liquid at the lowest temperature possible. The coils, in contact with cold brine, reduce the temperature of the juice by 30 degrees in a few minutes. An oil drum filler automatically fills and weighs metal cans. These are further cooled by a cold air blast, chilled by being blown through brine spray in the control rooms below. The cans of juice then go to storage rooms which may be held at from zero to 20 degrees, Fahrenheit. It is said that this quick frozen juice can be stored for years without impairing its flavor or taste and since no preservative is added, it will have all the properties of fresh juice when thawed.

A similar project for the important grape-growing belt of western New York is reported.

City Orange Juice Routes Planned

HOUSE-TO-HOUSE distribution of Florida orange juice, similar to house-to-house distribution of milk, is planned by the National Juice Corporation, which has signed contracts for the juice with the Florida Citrus Exchange.

The company will juice and freeze the fruit in Florida, and the product will be shipped frozen to northern terminals, where it will be de-frosted and bottled, it is announced. Pending the construction of its own facilities in the State, the corporation will juice and freeze the fruit in the plant of the Tampa Union Terminal Company, at Tampa, Fla.

In order to stimulate the demand for the product the first year, the Florida Citrus Exchange has allowed for a rebate to the company of 10 cents a box provided the company has spent 22 cents a box in advertising.

The first "key" markets in which the orange juice will be distributed will be Philadelphia, Pa.; Rochester, N. Y.; and Memphis, Tenn. From these starting points, the market for the product is expected to be rapidly developed and to include most of the United States.

The contracts with the citrus exchange call for the delivery of millions of boxes of fruit and extend over a period of 11 years, it is stated.—*J. H. Reed.*

New Farm Radio Receiver Planned

A NEW and revolutionary type of radio receiver, the result of three years experimenting in an effort to design a satisfactory set for use in homes not served by power lines, will be introduced to farmers this fall.

The new type sets, which already are being manufactured by many of the country's largest manufacturers, will to all intents and purposes operate just like alternating current sets, in that a simple switch will turn it on and off, with no rheostat or other adjustments, necessary.

A new type of vacuum tube has been perfected which operates satisfactorily on only two volts, together with a battery with tremendous reserve power and with constant voltage throughout a long life.

While farmers who have not purchased radio receivers—and there are approximately four million of them—have been urged for nearly 10 years to make use of the radio both for profit and pleasure, this is the first time a radio set has been available which will come up to what the farmer has demanded in radio reception and service.

Fruit Fly Regulated Area Reduced

THE UNITED STATES Department of Agriculture recently announced the release of an additional area in Florida from the restrictions as to the movement of host fruits and vegetables and other articles, which apply to the remainder of the State on account of the Mediterranean fruit fly. The modification became effective on October 15. The newly released area covers that part of the State lying between the Aucilla River on the east and the Ocklockonee River on the west, and is comprised of the counties of Jefferson, Leon, and Wakulla. The entire area released by present and a former order comprises 16 counties in western and northern Florida.

The same amendment to the regulations removes the permit requirements as to host vegetables produced outside of infested areas and authorizes their transportation by truck and other road vehicles from Florida. No changes are made in present regulations affecting fruit shipments from points east of Aucilla River.